

No. 22,810

In the

United States Court of Appeals

For the Ninth Circuit

FEB 24 1969

HARLAN P. HAMLOW and HENRY RAPOPORT,
Plaintiffs-Appellants,

vs.

SCIENTIFIC GLASS APPARATUS CORP., a Corporation, and RINCO INSTRUMENT COMPANY, INC., a Corporation.

Defendants-Appellees.

Plaintiffs-Appellants Brief

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STATEMENT OF ISSUES PRESENTED FOR REVIEW

Infringement

1. The holding of non-infringement cannot be sustained because infringement by Defendants* in the manufacture and sale of the "Vapsilator" Rotary Evaporator, has virtually been conceded, and has been thoroughly proved.

2. Infringement is not avoided because of a recommended use of the equipment in a non-infringing manner where the equipment

*Plaintiffs are Appellants here, but the parties will be designated in this Brief as they were in the trial court.

itself embodies and duplicates the precise structural elements of the claim in suit, and operates in the same way for the same purpose. Furthermore, infringement is not avoided because no actual *use* without lubricant was proved. Any *manufacture* or *sale* is infringement under 35 USC § 271(a).

Validity

3. The single claim of the patent in suit is not invalid and void under 35 USC § 102(b) because it was not in public use in this country more than one year prior to the date of the application for the patent in suit. The testing of 49 devices at the University of California was not a public use defeating validity of the patent in suit. Further, there is no anticipation of the claim of the patent in suit under 35 USC § 102.

4. The single claim of the patent in suit is not invalid and void under 35 USC § 103 because the differences between the subject matter of said claim and the prior art are such that the subject matter as a whole would not have been obvious at the time of the invention to a person having ordinary skill in this art, as required under 35 USC § 103. The teachings of the German Gebrauchsmuster Registration, supplemented by those of the Birchall and Buchler patents, do not invalidate the claim of the patent in suit.

5. The single claim of the patent in suit is for a combination of elements and this combination is not invalid because they do in fact produce unusual, surprising and unexpected results. In this connection, Plaintiffs may rely on features and advantages not set forth in the original filing.

6. If a German Gebrauchsmuster Registration may be considered prior art in the determination of obviousness under 35 USC § 103, which Plaintiffs do not concede, then this foreign Registration is available only to the extent which is apparent on the face of the document and without explanation or extrapolation.

7. On the basis of the record herein, the statutory presumption

of validity of the patent in suit and the single claim thereof has not been overcome. A German Gebrauchsmuster Registration was not a patent of a foreign country within the meaning and intent of 35 USC § 102(a) and 102(b) at the time the application for the patent in suit was pending, and therefore the presumptive validity is unaffected by this unpublished German Registration.

8. The Bernauer evaporator said to have been in use at Ohio State University does not represent a public use in this country more than one year prior to the filing date of the application for the patent in suit as it is wholly unproved and vague as to structure and time of use, and is wholly without confirmation or corroboration. For the same reasons it is not available as prior art under 35 USC § 103. Additionally and for the same reasons, the alleged modifications are not available to Defendants for any purpose.

STATEMENT OF PLEADINGS AND FACTS DISCLOSING JURISDICTION

This is a patent infringement suit brought by the Plaintiffs, Dr. Harlon P. Hamlow and Dr. Henry Rapoport (T 48),* against Scientific Glass Apparatus Corp., a California corporation, a seller of the alleged infringing equipment (T 48), Rinco Instrument Company, Inc., an Illinois corporation, the importer of the equipment (T 50), operating under the exclusive license from the manufacturer, Chemophor Zurich, a Swiss company (T 51), which voluntarily appeared and agreed to be bound by the results of this trial just as if it were an original party (R 68, T 51). Chemophor Zurich openly and actively assumed the entire control and management in the defense of this litigation (T 51). Dr. Andre Dreiding, a Swiss citizen and half owner of Chemophor Zurich (R 297, 376), was the only witness for

*Throughout this Brief, T will be used to designate the Transcript of Record and R will be used to designate the Court Reporter's Transcript.

Defendants at the trial. The trial court held the patent in suit invalid and not infringed. This decision was given from the bench at the conclusion of the trial (R 509-510). The suit was brought under the patent laws of the United States, Title 35 USC § 281 and Title 28 USC §1338. Defendants counter claim is based upon Title 28 USC §§ 2201 and 1338(a) (T 48). This Court has appellate jurisdiction under Title 28 USC § 291. Defendants filed a Cross appeal with respect to the taxing of costs but the same has been voluntarily dismissed by Defendants in this Court. There is no contention with respect to jurisdiction (Plf Ex 12, p 6).

STATEMENT OF THE CASE

The patent in suit, No. 3,219,099 (T 6), is directed to a Rotary Evaporator which is a relatively small piece of scientific laboratory equipment. The patent issued with a single claim on November 23, 1965 to Plaintiffs, Dr. Harlon P. Hamlow and Dr. Henry Rapoport (T 48). Rotary evaporators are of recent origin and were first suggested in 1950 in an article by Craig et al (R 348). Defendants witness Dr. Cava stated they were not common even in 1959 (R 230). This was corroborated by Dr. Rapoport (R 24). Rotary evaporators have now become a necessary piece of apparatus in practically all phases of chemical analysis. Defendants expert, Dr. Dreiding readily stated (R 321):

"According to our standards I would say very frequent use. This is the kind of equipment one uses a great deal in a laboratory which, of course, is the reason why there has been so much development activity in this field * * *"

The rotary evaporator uses thin layer evaporation to separate the desired residue from aqueous and other solutions (R 82-83). The thin layer is accomplished by the rotation of a spherical glass flask which spreads the solution over a large area on the inside of the flask even when small volumes are used. It is

apparent that this provides a condition for rapid evaporation. The equipment is operated under vacuum so that the temperatures used for evaporation are kept to a minimum. It is axiomatic that even the slightest contamination in the operation of the equipment which could contact either the solution or the vapors, would distort and destroy the accuracy of the work (R 25, 215, 180, 284, 320, 448). The work of the prior investigators as exemplified by the plethora of patents and publications produced by Defendants herein, (Appendix A), talented and distinguished as they were, had not produced a rotary evaporator with an air tight rotating joint without the use of a lubricant. No one denies that lubricants and corrosion are contaminants (R 25, 180, 215, 280, 284, 320, 448).

For the proper operation of a rotary evaporator there are two joints or connections of primary importance (R 399, 449, 455). These are (1) the rotating joint or connection between the rotating parts and the stationary take off parts i.e. the ball and socket joint and (2) the joint or connection where the evaporating flask is attached and detached to the rotating member. As long as these joints or connections are vacuum tight and non-contaminating, they will function properly (R 35). It is apparent that the rotating connection is continually moving during operation. The flask must be attached and removed at the beginning and finish of each operation (R 137). It is these two joints or couplings which are of primary importance in this litigation.

In 1957 Drs. Hamlow and Rapoport were confronted with a great need for a rotary evaporator which was air tight and free of contamination (R 24-25). To their knowledge, no such equipment was available (R 25). They analyzed the problem (R 23) and concluded that such a rotary evaporator had to have general and universal usefulness (R 20-21) which incorporated (a) the handling of thin films of material in either batch or continuous operation, (b) accomplished the evaporation at all use-

ful ranges of temperatures, (c) required no lubricated joints or couplings causing contamination, (d) would not react with the material being treated, also causing contamination, (e) could be readily assembled and disassembled, (f) had a minimum of parts and (g) was not a single purpose piece of equipment but which could readily be coupled for use with other standard laboratory equipment. This is what Drs. Hamlow and Rapoport set out to accomplish and this was what resulted in the patent in suit (R 25, 55). Plaintiffs rotary evaporator as claimed is just such a piece of equipment (R 35).

The apparatus of the patent in suit and its operation can best be explained and epitomized by reference to the patent drawing reproduced in Appendix C at the end of this Brief. It is perhaps not an over simplification to state that the apparatus is made up of three principal parts. *First*, beginning at the bottom of the drawing, is the spherical glass flask 60. This flask has a standard tapered glass neck 34 (R 18). *Second*, a Teflon rotating shaft 31 with a male taper 32 at the lower end which couples within the neck 34 of the flask 60 making a glass to Teflon coupling (R 21). Since the Teflon shaft is rotated by the motor 14, it is apparent that the glass flask rotates with the shaft 31 (R 20). And *third*, a stationary glass take off member 36 which terminates at its lower end in a semi-spherical glass socket 37 which mates with the rotating semi-spherical ball portion 33 of the Teflon shaft 31 to form a Teflon-to-glass rotating coupling (R 21-22). The Teflon shaft 31 is a new element in this art (R 84, 85, 54). Teflon as a material is unique. It is substantially self-lubricating so that no lubricants are required. It can be machined to close tolerances like metal, and yet it is chemically inert. It has this last characteristic in common with glass. The Teflon-to-glass coupling of the flask 60 is air tight without lubricant (R 21) and separates easily without the hazard of freezing together (R 53-54). The coupling between the stationary

glass socket 37 and the rotating Teflon ball portion 38 of the shaft is air tight without a lubricant (R 21). The vacuum or low pressure source is shown at 65 and supplies the vacuum for the operation of the equipment. The Teflon shaft with the Teflon to glass contacts at both ends is new to this art (R 89, 84, 85, Plf Ex 4). It is readily admitted by Defendants that there is nothing in the prior art either by patent or publication which teaches a rotating Teflon shaft with Teflon to glass couplings at both ends, air tight with no lubricant needed (R 407, 353, 410).

The patent in suit was not issued without a struggle. All of the claims were rejected in the Patent Office and an appeal to the Board of Appeals was taken by Plaintiffs with the result that because of the novelty and the absence of any teaching of a rotating Teflon shaft with Teflon to glass air tight lubricant free couplings at both ends, the single claim in suit was allowed (Plf Ex 4).

In the Patent Office (Def Ex K) and before the Board of Appeals (Plf Ex 4) nearly all of the art relied upon herein by Defendants was present and considered. The two principal patents relied upon by the Patent Examiner were Buchler (Def Ex A-5) and Ueberwasser (Def Ex A-7, A-8, R 56) were considered and the claim allowed over these patents (T 9).

The only alleged reference which was not considered by the Patent Office and which is here relied upon both in the trial court's decision and by Defendants, is the so-called Bernauer Gebrauchsmuster (Def Ex R, R-1) which is a German Registration of a Utility Model. It is Plaintiffs position that the Gebrauchsmuster is not a patent within the meaning of the statute, and certainly is not a prior publication, and as such cannot defeat patentability of the claim in suit. Also, that the failure of the Patent Office to cite this German Registration does not destroy the *prima facie* validity of the patent in suit, because at the time Plaintiffs patent application was before the Patent Office, a Gebrauchsmuster was

not considered a prior reference, or a prior patent (Def Ex Y). According to Defendants own exhibit (Def Ex Y), the Patent Office did not change its practice with respect to Gebrauchsmuster Registration until 1965, which was after the allowance of Plaintiffs patent.

It is the testimony here that Dr. Bernauer in Zurich, Switzerland had been investigating rotary evaporators and trying to improve them and was joined by Dr. Dreiding, Defendants expert and only witness, to complete the structure of the Bernauer German Gebrauchsmuster (R 299). On numerous occasions during his testimony, Dr. Dreiding stated that he and Dr. Bernauer developed the equipment shown in the Gebrauchsmuster (Def Ex R, R-1) (R 300, 309, 319, 396, etc.). At no time in any of the published documents in evidence is there any reference to Dr. Dreiding in connection with this development, which goes to the veracity of this witness. It is Plaintiffs conviction that even if the Bernauer Gebrauchsmuster is considered for any purpose, it is not structurally within the claim of the patent in suit and therefore cannot in any event anticipate, or teach the combination of the claim here in suit.

Defendants offered the deposition of Dr. Cava of Wayne University (R 163) in the effort to establish the presence of a Bernauer rotary evaporator in the United States just prior to the critical date of Plaintiffs invention. Dr. Cava's obvious indebtedness to Dr. Drieding (R 165, 220-226, 325-326, 377) and his loyalty to him, remove any credibility to his testimony. Dr. Cava had no independent memory of this equipment (R 236, 229.) Also, Dr. Cava was unable to substantiate even the slightest detail of the dates which he asserted with any documents which could in any way give credence to his deposition (R 293, 229, 231, 232, 234, 236). However, his testimony is almost entirely with respect to Bernauer rotary evaporator, which, as stated above does not teach, disclose, or describe the inventive combination of the claim in suit.

In spite of all of the large number of alleged prior art references placed before the trial court, not any of it taught the combination of the claim in suit as will be demonstrated. (See Appendix D) Dr. Dreiding had the key portion of the combination of the claim directly before him in his investigations on this very subject, and yet neither he nor Dr. Bernauer recognized it (*Infra* p. 32). What is now said to be obvious by Defendants, was not obvious to their own experts at the time this invention was made by Plaintiffs.

The trial court held that the combination was obvious under 35 USC § 103 and this is factually and legally unsupportable.

Defendants urged, and the trial court held, that the patent in suit was invalid under 35 USC § 102(b) on the ground of prior public use (R 509). The testimony shows the use of approximately 49 rotary evaporators made in accordance with the elements of the claim in suit (R 49), for a period of about five months prior to the critical date, which equipment was distributed by Dr. Rapoport (R 43) for use by his graduate students in their investigations looking toward a doctors degree in chemistry, for the sole purpose of testing the durability and operation of the equipment (R 100) under the severest kinds of circumstances (R 42-43). Prior to this time, the only testing of the equipment had been by Dr. Hamlow (R 41, 42, 100). Plaintiffs assert that this is not the kind of use which invalidates a meritorious patent, and that the evidence does not support the findings or conclusions that there was a prior public use which would warrant a holding of invalidity.

As has been stated earlier, the claim of the patent in suit is for a combination of some eleven elements. Of these eleven elements all but four were conceded by the Defendants to be incorporated in the alleged infringing structure, the "Vapsilator." (R 65) At the trial after Plaintiffs had proved the precise identity of the structure of the "Vapsilator" with that of the elements of the claim in suit, Defendants then conceded that all but one of the elements were incorporated into the "Vapsilator" (R 73, 127,

128) and with respect to this the structure of the element was not denied, but only the operating condition denied (R 75). They denied that the juncture between the Teflon shaft and the fixed glass socket at the upper end of the equipment was self-lubricating (R 75-76) because the brochure *recommended* the use of a lubricant. Such a recommendation is merely a semantic maneuver (R 115). Where all of the elements of the combination claimed are present in the infringing structure, merely a recommendation for an inferior or improper operation does not avoid infringement. Defendants accordingly have tacitly admitted infringement.

It is to be remembered that Defendants only witness, Dr. Dreiding from Switzerland (R 296), testified with respect to the alleged prior art offered by Defendants. He claimed personal knowledge and participation in the development of rotary evaporators since 1955, and led the trial court to believe that this prior art taught the subject matter of the claim in suit. However, when his own company (R 297, 376) came to build the infringing structure, the "Vapsilator" in Switzerland in 1965, ten years later and four years after Plaintiffs had had their machine on the market (R 46), Dr. Dreiding's machine did not follow the teachings of the prior art, but rather incorporated every single detail of structure and operation of Plaintiffs equipment.

The questions which the trial court refused to face up to were: if the combination of elements claimed by the patent in suit was so obvious, why did not someone other than the Plaintiffs do it? Admittedly no one else did (R 407-410). Also, if the prior art devices worked completely satisfactorily to teach and disclose the structure and combination of Plaintiffs claim, then why did Dr. Dreiding's firm produce its "Vapsilator" as a "Chinese Copy" of Plaintiffs' claim, rather than following the prior art with which he was thoroughly familiar.

The answers to these two questions alone demonstrate that the holdings of invalidity and non-infringement by the trial court must be reversed.

SUMMARY OF ARGUMENT

The claim of the patent in suit is a combination claim of old and new elements. The invention, of course, resides in this unique organization as a whole, which is more than the sum of the parts.

Infringement by Defendants product, the Vapsilator, was virtually admitted, partly during the pretrial and the remainder during the trial. It was abundantly proved that it uses the complete combination of elements of the claim in the same organization and operates in precisely the same way for the same purposes. The holding of non-infringement cannot be sustained. The infringement is not avoided by a "recommendation" for a less efficient use of the equipment, as the normal use would be precisely that of the patent in suit. It is the manufacture and sale of the equipment which is the infringement under 35 USC § 271(a).

The question of validity is a sophisticated matter and requires study of the art and the application of the rules. The invention here is an important one, although the differences over the prior art do not appear to be giant strides. As so often happens, great changes come about in almost imperceptible increments and become apparent only when the new combination satisfies the needs of those involved. The defense of invalidity was based upon 35 USC §§ 101, 102, 103 and 116. Judgment was given to Plaintiffs in connection with § 101 and § 116. (R 447).

The defense, under § 102 centered around 2 issues: first, a German Gebrauchsmuster covering a development of Dr. Bernauer, a Swiss investigator, and registered to L. Hormuth, the manufacturer of the Bernauer equipment. There is no holding in this Circuit that a German Gebrauchsmuster Utility Model Registration is a patent within the meaning of § 102. In no event is it a printed publication under § 102. Accordingly, the Gebrauchsmuster is not a proper reference in this case. Furthermore, at the trial Defendants readily admitted that the Gebrauchsmuster did not contain the elements called for in the claim of the patent in

suit and did not operate in the same way to accomplish the same results. Accordingly, there can be no anticipation by this Utility Model Registration. Therefore, there can be no anticipation under § 102 because the devices must be identical in structure and operation.

Second, under § 102(b) the trial court stated there was a prior public use of plaintiffs' invention by graduate students operating some of these machines more than one year prior to the filing date. The evidence showed clearly that this was merely a testing use and factually well within the legal and permissible uses and of the decisions and did not constitute a prior public use. This holding of prior public use is not supported by the facts or the law.

The main defense of invalidity appears to rest on the ground of obviousness under 35 USC § 103. One has to remember that anything becomes obvious after it has been done, and that in applying the rules and tests, obviousness is to be determined as of the date of the invention, which was April 1958. The manner of determining obviousness was set forth by the Supreme Court in *Graham v. John Deere*, 379 US 956; 148 USPQ 459 at 467 (1966). The Ninth Circuit has been successful in carefully following the rules laid down for determining obviousness.

The prior art referred to in the testimony here shows that glass-to-glass joints between the flask and the shaft were common and well known. Glass-to-glass rotary ball joints were also well known. Teflon-to-Teflon rotary ball joints were also known. Only in Plaintiffs patent is there taught glass-to-Teflon tapered joint in rotary evaporators and only in Plaintiffs patent is it taught that the Teflon-to-glass ball joint, which is self lubricating and contamination free. Plaintiffs patent taught the all Teflon rotating shaft with a uniform continuous central passage. It is these new features combined with the old ones which made Plaintiffs rotary evaporator the success which it instantly became. Defendants cited a plethora of prior art in the attempt to invalidate Plaintiffs

patent on the ground of obviousness. (See Appendices A and D). The Court relied upon only three, the German Bernauer Utility Model Registration, the Birchall patent for stopcocks, and the Buchler patent. During the course of the testimony, Defendants expert, Dr. Dreiding, was asked to point out the patent and/or publication closest to the invention of the claim in suit. The Bernauer Utility Model Registration was the one selected. Defendant admitted that no prior patent or prior publication showed the combination of Plaintiffs claim. The Bernauer Utility Model did not, as was readily admitted by Defendants, contain the novel features of Plaintiffs combination. It did not teach anything which would make applicants novel combination obvious. In fact, it taught quite the contrary. The Bernauer Utility Model Registration specifically states that a Teflon-to-Teflon rotary ball joint is essential to make it operate. There is nothing in it which would teach an all-Teflon rotating shaft. Thus, the main item of prior art does not contain, or teach, or disclose the possibility of Plaintiffs combination. The trial court's perfunctory statement that the Buchler patent shows a contamination-free Teflon-to-glass joint is simply not true. It does show a Teflon-to-glass plus metal joint at one part in the apparatus, but neither Defendants nor anyone else claims that this was contamination free. This was one of the principal references in the Patent Office and Plaintiffs claim was allowed over it. The Birchall patent related to stopcocks of glass with Teflon plugs. It is obvious that a stopcock cannot in any manner teach the combination of a rotary evaporator. Since a requirement is that the prior art must as of the date of invention, show the combination of Plaintiffs claim to be obvious, it is apparent that the prior art relied upon in no way supports this conclusion. Individual elements of the prior art cannot be selected to form a synthetic structure which never existed, in the effort to show invalidity. Furthermore, commercial success is an element for consideration. There is no question but that Plaintiffs products

manufactured under the patent in suit had a phenomenal commercial success without any sales program and without any salesmen. There is no evidence to the contrary.

One of the greatest compliments an infringer can pay to the patent in suit is to design the infringing instrument as a Chinese copy of the claim in suit. This is precisely what the Defendants did. Dr. Dreiding, who was Defendants only witness, and expert, and who owned a substantial interest in the company manufacturing the infringing Vapsilator device in Switzerland, designed the infringing Vapsilator to combine all of the elements of the claim in suit and did not in any respect follow the prior art which he relies upon so strongly to invalidate Plaintiffs patent. If the prior art was sufficient to invalidate the claim of the patent in suit, then it would be the equal or better than that of the combination claimed. Obviously it was not. Furthermore, both Dr. Dreiding and Dr. Bernauer were men highly skilled in this art. They produced the Bernauer structure. In so doing, they had before their very eyes the germ of Plaintiffs invention and yet it was not obvious to these highly skilled men. If Plaintiffs' invention was so obvious from the prior art, then why did not Dr. Bernauer and Dr. Dreiding produce it? The simple fact remains that only Plaintiffs did. It is apparent that the differences between the organization of elements in the claim here in suit was not obvious from the prior art at the time of Plaintiffs invention in April of 1958. The defense of invalidity cannot therefore be sustained, in fact, or in law, and the patent is clearly valid.

ARGUMENT

Infringement Is Clear and Unequivocal

The trial court, at the conclusion of the trial, held from the bench (R 510) that there was no infringement of the combination of elements set forth in the single claim of the patent in suit, and gave as the reasons (R 510)

"the apparent required* use of the lubricant at the connection in the ball and socket as recommended and because of the lack of evidence of the lack of necessity of such lubricant at those points."

Not only is there no evidence to support the holding of non-infringement, but the reasons ascribed are wholly without factual or even plausible support.

In Defendants admissions (Plf Ex 12 p 2-4) and in the Findings of Fact (T 49), it was held that the single claim of Plaintiffs' patent was a combination claim divided into eleven elements, the separate elements of which Plaintiffs have lettered (a) to (k) inclusive, as follows: (See also Appendix D)

	"Vapsilator" Structure
Apparatus for separating and removing volatile substances from a composition, in combination	admitted
(a) a housing,	admitted
(b) a shaft made of polyfluorovinyl resin	admitted
(c) rotatably mounted in said housing and with both of its ends extending beyond the limits of said housing	admitted
(d) said shaft having a passage of substantially uniform diameter extending axially through the entire length thereof	present (R 66,70, 123)
(e) said shaft having one end thereof removably securing a flask in airtight engagement for rotation therewith	admitted
(f) said shaft having its opposite end formed as the ball portion of a ball and socket joint	admitted
(g) a separately mounted glass fixed member.....	admitted

*The word which Defendants used was "recommended" (Plf Ex 2, R 114). There is no testimony to the effect that lubricant was required, but quite the contrary.

"Vapsilator"
Structure

- | | |
|--|---------------------------|
| (h) having an axial passage therethrough of substantially the same diameter | present
(R 71-73) |
| (i) terminating with the socket portion of the ball and socket joint rotatably receiving and seating the said ball portion of said shaft in airtight self-lubricating engagement and with their respective passages in alignment | present
(R 74-77, 125) |
| (j) exhaust means communicating with the passage in said fixed member connected to a source of low pressure, and | present
(R 77-80, 127) |
| (k) drive means mounted in said housing for rotating said shaft | admitted* |

*See Defendants Statement R 73 and Stipulation R 127-128.

In answer to the Plaintiffs' Interrogatories directed to infringement (Plf Ex 12, p 2) Defendants admitted, and as embodied in the Pre-Trial Order (T 24) also admitted, that their apparatus, known as a "Vapsilator" (Def Ex AA) was accurately shown and described in their catalog sheet (Plf Ex 2). It was admitted also that Defendants were engaged in the manufacture, sale and distribution of the "Vapsilator." Defendants admitted that all of the eleven elements (a to k) of the claim were precisely identical with those of the "Vapsilator" except for four elements (R 65) e.g. (d) (R 66, 70, 123), (h) (R 71, 73), (i) (R 74-77, 125), and (j) (R 77-80, 127). (See also Plf Ex 12, p 2-4). At the trial, (R 66), and under pressure of cross examination, Defendants conceded (R 127-128) that each of these excepted elements of the claim were in fact present in exactly the same form and structure in Defendants apparatus except element (i), and as to this structure, i.e., the Teflon-to-glass ball and socket joint, the structure was not denied, but only that this structure was not *self-lubri-*

cating engagement (R 76). Infringement was virtually conceded by Defendants. The testimony of Dr. Rapoport was clear and unequivocal, in spite of Defendants' denials, that each of the elements of the combination claim was exactly found in the "Vapsilator," (R 65-80). Each of the elements of the "Vapsilator," as in the claim of the patent in suit, performed their same functions in the same way to accomplish the same result, (R 61, 81). There were not substitutes or equivalents. The "Vapsilator" having the same combination of elements set forth in the claim and operating in the same manner for the same purposes and having been sold in this jurisdiction, is infringement under 35 USC § 271. There is no evidence to the contrary.

In *Wahl v. Carrier* 358 F(2) 1; 148 USPQ 698 (7th Cir—1966) the Court held: (p 702)

"Those findings establish that the Carrier feeder includes each and every element of those patent claims and uses the same principle of operation—a deliberate and controllable vibration of the auger during its rotation, in the combination of such claims—to produce the identical results in the same manner as disclosed by the patent in suit. The Carrier feeder is therefore an infringing device. *Binks Manufacturing Co. v. Ransburg Electro-Coating Corp.*, 7 Cir., 281 F.2d 252, 258, 126 USPQ 318, 324; *Briggs v. M & J Diesel Locomotive Filter Corp.*, 7 Cir., 342 F.2d 573, 580, 144 USPQ 701, 707."

In *Ashlock v. Atlas—Pacific* 225 F Supp 205, 139 USPQ 421 (1963) the Court held: (p 433).

"The Defendant's pitting machines each amount to a combination and arrangement of mechanism which produces the same effect and in substantially the same way as the combination and arrangement of the mechanism of Claim 11, and defendant's pitting machines are infringements of Claim 11."

As to the reasons given for the holding of no infringement, the Court referred to the language shown on the double spread of

Plaintiffs' Exhibit 2, and enlarged in Plaintiffs' Exhibit 21. These words under Point 2 are, "We recommend a thin layer of silicon lubricant" (R 114). There was no question but that lubricants can be used in the Teflon-to-glass ball and socket joint (R 342), but that such lubricant would be a contaminate (R 114) and destroy the accuracy of any work being done (R 448, 441, 215, 284). The use of lubricant does not destroy the air-tight engagement. The words of Defendants brochure do not state that the operation of the "Vapsilator" should never be without the use of a lubricant, or anything to the effect that a lubricant is required to be used in the "Vapsilator." Certainly, no purchaser of this equipment interested in accurate results would ever follow this recommendation knowing full well that the Teflon-to-glass rotating ball joint would result in an air-tight self-lubricant engagement without lubricant contamination (R 89, 284, 342, 215, 320).

Furthermore, the recommendation is inconsistent with, and contradictory to other statements in the "Vapsilator" brochure (R 115). In paragraph 4, it states the operation is clean and that *only* the solvent is in contact with glass and Teflon. This could not be true if a lubricant were used. The recommendation cannot be taken seriously in view of this statement (R 115). The recommendation of the leaflet is obviously a red herring intended as a subterfuge in semantics to avoid infringement.

The fact still remains that the Teflon-to-glass rotating ball joint will give an air-tight seal without lubricant and without contamination, both in Plaintiffs' claim and in the infringing "Vapsilator," and anyone using or purchasing any of this equipment would know this immediately. The structure of the claim is complete and identical in the "Vapsilator" (R 80-81, 73, 127-128) and the structure is not destroyed by a recommendation for its misuse or less advantageous use.

In *Stearns v. Tinker & Rasor* 252 F(2)589; 116 USPQ 222 (9th Cir.-1957) this Court held: (p.226)

"The reading of the testimony convinces us that Stearns did not use a wheelless pusher, because one with rollers or wheels provided a better mode of operation. This does not mean that merely because another uses a less effective mode of operation he avoids the charge of infringement."

See also: *Ekco v. Chicago Metallic* 321 F(2)550; 138 USPQ 547 (7th Cir. 1963) and *Esco v. Hensley* 147 USPQ 15,20 (DC ND Calif.-1965)

The elements of the "Vapsilator" are identical with those of the combination of the claim in suit and this is determinative of infringement.

The uncontroverted evidence is the exact identity of the structural elements of the claim in suit and the structure of the "Vapsilator" (Def Ex A) as well as the operational identity (R 65-80).

As to the second reason ascribed by the trial court (R 510), the double negatives used result in a positive statement, and the proof is clearly that a Teflon-to-glass rotating ball joint is air-tight and self-lubricating (R 89, 342, 215) and that such a joint is necessarily free of lubricant in a rotary evaporator, if the machine is to function properly as intended and the results are to be accurate. The evidence is repleat with statements that there is no necessity for, in fact it is harmful to have lubricant used in the Teflon-to-glass ball and socket joint (R 89, 215, 320, 342, 448). Defendants admit that infringement requires that all of the elements of a combination claim be found in the device charged to infringe (R 129). Infringement is established when such a device is made, used or sold 35 USC § 271 (a). It is true that there is no proof of use (R 116). However, Defendants admit (Plf Ex 12, p 7) they did make and sell this combination of elements as set forth in the claim of the patent in suit, and by the statements of their own brochure (Plf Ex 2) it can be operated with or without a lubricant for the Teflon-to-glass ball and socket joint (R 115). Infringement is not determined by a recommended faulty or im-

proper use. Infringement is the making and/or selling of the infringing structure, the "Vapsilator."

The holding of no infringement is clearly unsupported by the evidence and therefore should be reversed.

Invalidity Has Not Been Established

THE PATENT IN SUIT IS NOT INVALID BECAUSE OF A USE AT THE UNIVERSITY OF CALIFORNIA

The trial court treated invalidity of the patent in suit with the same cavalier approach as was done with respect to infringement. The holding of invalidity should not be treated lightly as it totally involves the destruction of earnest effort, and the sacrifice of time and money as well as the hope of future reward. It is therefore completely astounding that the trial court, without more a-do announced (R 509),

"The Court finds that the use at the University of California of the 49 devices was a prior public use within the meaning of 35 United States Code Section 102(b)."

Such a finding should be the result of a careful analysis of the testimony to ascertain the precise facts and the application of the facts so found to the law.

The entire testimony on this point does not occupy much space in this record. It involves the direct testimony of Dr. Rapoport (R 42-45), and the cross-examination of Dr. Rapoport (R 92-100). It covers a time period beginning not earlier than March 9, 1960 up to August 11, 1960, [which is one year prior to the filing of Plaintiffs application], or some five months time.

There is no question that 49 rotary evaporators were made (R 42) around March 9, 1960, and that these rotary evaporators were precisely the same as those of the patent in suit in all material aspects (R 43). It is equally true that the two original machines were both being tested by Dr. Hamlow (R 40-41, 92) and that Dr. Hamlow's reports to Dr. Rapoport on observations of

the use were very favorable. Why then were these 49 machines built? Both of the patentees had some reservations as to the success of the apparatus because the operation was being carried out by one of the inventors (R 42, 100). Primarily it was Dr. Hamlow's baby, with the result that the treatment could be most gentle. Before reaching any decision as to the general and wide applicability of this apparatus, both Drs. Rapoport and Hamlow felt that it was essential to test these machines experimentally on a wide range of projects (R 42, 100). The best and worst of such tests were to put the apparatus into the hands of graduate students at the University of California (R 43) and require them to make reports on the construction and operation of this equipment in connection with their several and varying projects (R 42-43). Dr. Rapoport felt that this would be an extreme test under laboratory practice (R 43).

The test was conducted in the Department of Chemistry at the University of California and was at all times under the direction and control of Dr. Rapoport (R. 43). The instruments were turned over to his graduate students and passed out to them with the obligation of the students to give a full report on its construction and operation (R 43). At the conclusion of the tests, no date for which was established, Dr. Rapoport felt that the results were so impressive that he and Dr. Hamlow should go ahead and make this equipment available to others doing chemical research (R 44). There was no thought of any commercial use until after the testing of these machines. The apparatus was tested under a wide range of conditions and under all of them it stood up quite well (R 45). The first sale did not occur until November 16, 1960 (R 46), well within the one year statutory period (Patent Office Rule 65, 35 USC § 102(b)).

On cross-examination, it was brought out that Dr. Rapoport had issued instructions to keep the laboratory locked (R 93) and that graduate students, custodians, and faculty members were the

only ones that had access thereto. No others had access (R 93). There was very little opportunity for access because Dr. Rapoport's graduate students occupied a portion of the third floor in the old Chemistry Building, which was an obscure location to begin with, and not on any main corridor (R 93-94).

At the time the instruments were issued, Dr. Hamlow described the instrument and its use in a seminar (R 94) and that an anxiety to acquire these instruments by the graduate students ensued. The instruments were to be employed in the graduate student's elected line of investigation looking forward to a doctors degree in chemistry (R 95). The seminar was a closed seminar (R 97) which only Dr. Rapoport's own graduate students attended and only some twelve persons were involved (R 97).

Each of these pieces of equipment was involved in no other work and was solely for the purpose of securing further experimental tests of this apparatus (R 100).

Elizabeth v. Pavement Co. 97 US 126; 24 L.Ed. 1000 (1877) is the classic case on public use and represents the extent which courts will go to hold validity, when there has been no release of the invention to persons generally and where there is no commercial use or exploitation. The court held: (p 134)

"The use of an invention by the inventor himself, or of any other person under his direction, by way of experiment, and in order to bring the invention to perfection, has never been regarded as such a use."

* * * * *

"When the subject of an invention is a machine, it may be tested and tried in a building, either with or without closed doors. In either case, such use is not a public use, within the meaning of the statute, so long as the inventor is engaged, in good faith, in testing its operation. He may see cause to alter it and improve it, or not. His experiments will reveal the fact whether any and what alterations may be necessary."

This Court has recently reviewed the law under 35 USC § 102(b) and is fully cognizant of and cited with approval the

law which has continuously been applied since *Elizabeth v. Pavement Co.* (97 US 126, 24 L Ed. 1000 (1877)). In *Super Mold v. Clapp's Equipment* F(2); 158 USPQ 527 (9th Cir. 1968), this Court stated: (p.527)

"The statute thus permits the inventor to retain the secrecy of his discovery as long as he does not commercially exploit its use for more than one year prior to his patent application."

In *Cataphote Corp. v. De Soto Chem.* 356 F(2) 24, 25; 148 USPQ 527 (9th Cir.-1966), in *Tool Research v. Honcar* 367 F(2) 449; 151 USPQ 236 (9th Cir.-1966) and in *Super Mold v. Clapps Equip* (supra) this Court held the patent invalid under 35 USC § 102(b). In each instance there was substantial proof of prior public *commercialization* to support the findings. Here there is none. That the use here was in good faith merely experimental is best shown by the testimony of Dr. Rapoport (R 42).

"Q. What was the purpose of making that number of rotary evaporators at this time?

A. We were very impressed with the initial operation of the first and second instrument but we also had some reservation because the operation was being carried out by one of the inventors. Essentially it was his baby and the treatment I think was quite gentle.

"Before reaching a decision as to the general and wide applicability of such an apparatus we felt it should be tried by lesser, let us say, more distant graduate students who would give it possibly the worse experimental tests that one could conceive. We had these made deliberately to put this to the extreme tests, namely, to put it in the hands of students."

And again, on cross-examination (R. 100)

"Q. At the time you placed this order to have forty nine of these evaporators made and most parts for one hundred at that time did you still have doubts that this device would not be satisfactory in operation?

A. I had some doubts. I was beginning to form an opinion but I had some doubts because as you recall the testing in the application had been done by Hamlow and it was his baby. One has to be a little careful in evaluating his optimistic reports so that my impression was that this was good. We still needed further experimental tests.”

No conclusion as to any commercial use of the instrument was made until after the conclusion of this experimental work (R 44). Dr. Rapoport stated

“A. The conclusion was that this was it. We had in our hands undoubtedly the best rotary evaporator that was around. With such an impressive instrument the decision was that we should go ahead and make it available to others doing chemical research as well.”

The facts derived from this testimony—and there is no other, are clearly within the authorized use as set forth in *Elizabeth v. Pavement Co.* (*supra*) where the Court states (p 135)

“He may have it put up and used in the premises of another, and the use may inure to the benefit of the owner of the establishment. Still, if used under the surveillance of the inventor, and for the purpose of enabling him to test the machine, and ascertain whether it will answer the purpose intended, and make such alterations and improvements as experience demonstrates to be necessary, it will still be a mere experimental use, and not a public use, within the meaning of the statute.”

There are no facts to support invalidity under 35 USC § 102(b).

PLAINTIFFS' INVENTION WAS NOT OBVIOUS UNDER 35 USC § 103

The Art Relied Upon Does Not Teach or Disclose Plaintiffs' Invention as a Whole at the Time the Invention Was Made

The defense of obviousness is bottomed on the language of 35 USC § 103 which in part reads as follows:

"A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. * *"

The reliance upon the prior art to show obviousness under § 103 has a necessary corollary i.e. that such art cannot be available for the defenses under § 102 since they are not identical disclosures of Plaintiffs' invention. Also one should not forget the basic consideration that all things become obvious once they have been accomplished.

White v. Converse 20 F(2) 311 (2nd Cir—1927) Judge Learned Hand stated (p. 313)

"* * it is the obvious when discovered and put to use that more often proves invention. * * * * The fact that the changes were so slight is quite irrelevant, so long as they were essential to the purpose, as they were."

The art relied upon by the Defendants consisted of some twenty prior art references none of which Defendants admitted (R. 410, 353, Plf Ex 13 p 5) show the structure or organization of elements called for by the claim in suit. (See also Appendix D). However the trial court relied upon only three references in holding Plaintiffs patent invalid in view of § 103. These three are:

The Bernauer German Gebrauchsmuster (Def Ex R, R-1);
Buchler U.S. Patent (Def Ex A-5) and Birchall U.S. Patent (Def Ex A-6).

Only the first two of these are directed to rotary evaporators, and the third is directed to stopcocks.

In order to uniformly apply the provisions of § 103, the Supreme Court in *Graham v. John Deere*, 279 U.S. 56; 148 USPQ 459 (1966) set forth the basic factual inquiries which should be

satisfied in order to determine invalidity or validity. The court stated: (p. 467)

"Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or the nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy."

This Court has consistently followed the determinations laid down by the Supreme Court, see *Evans Products v. Preco Inc.*, 378 F(2) 191; 153 USPQ 835 (9th Cir—1967) and *Hensley Equipment Co. v. Esco* 375, F(2) 432; 152 USPQ 781, at 782 (9th Cir.—1967), *Zilk v. Deatons* 377 F(2) 545; 153 USPQ 386 (9th Cir—1967).

The first determination of course is, what is Plaintiffs' invention. This invention is a combination of eleven elements organized and combined to produce new and unexpected results in a rotary evaporator. Some of the elements are new to this art admittedly and some are old.

There can be no denying that the elements old in this art are taught by the prior art. The new elements of the combination are a Teflon rotating shaft (R 455, 28-29, 445) having a tapered male coupling at the lower end, and a Teflon ball portion of a ball and socket joint at its opposite end, with a uniform passage therethrough (R 448). It is also new in this art to provide a glass to Teflon air tight and contamination free coupling at the lower end of this shaft, (R 449, 407) and it is likewise new in this art to provide a Teflon to glass ball and socket rotating joint which is air tight and contamination free (R 451, 353, 410, 445). These

are the principal differences over the prior art cited by the Defendants and it is these differences which Plaintiffs state result in a superior contamination free Rotary Evaporator (R 35, 44).

The factual questions for determination are, are these differences over the prior art references so insignificant that Plaintiffs invention as a whole, would be obvious to a person having ordinary skill in this art at the time the invention was made, April 24, 1958 (R 27). The burden of proof is on Defendants and this burden has not been met.

The Bernauer Gebrauchsmuster

The German Gebrauchsmuster of Dr. Bernauer (Def Ex R, R-1) teaches a rotary evaporator, but it shows and teaches a glass to glass joint of the flask k to the glass shaft g (R 386). This glass to glass joint continues the problems of freezing and breakage which have plagued investigators and researchers in the past (R 111), it therefore teaches nothing new. It provides a Teflon adaptor h which has the ball of a ball and socket joint and a connector socket for the ball joint j, also of Teflon. Thus it is a rotating ball and socket joint with both members h and j made of Teflon (R 341). There is no teaching of an air-tight self lubricating Teflon-to-glass rotating ball and socket joint as called for in Plaintiffs claim. Defendants experts do not agree as to the use of grease or lubricant on the Teflon to Teflon joint. Dr. Cava says none was ever used (R 179), Dr. Dreiding says it was necessary to use lubricant to make the Bernauer equipment operate properly (R 324)

"No we originally did not use any lubrication at all. We thought that this was the reason why we constructed the apparatus, to have it lubrication free. As it turned out however that was as Teflon rotates on Teflon under vacuum conditions there were some pressures put upon it there is a small amount of flaking that occurs. The teflon is flaked off in extremely fine tiny little flakes so that one can hardly

weigh them, they cannot be seen. In order to avoid that some of my co-workers prefer to put a little bit of grease even on the teflon to teflon joint. It turned out that the amount of grease that one needed to make this teflon joint work, turn freely without locking was very, very small."

In this, the Bernauer evaporator did not come up to the expectations which Dr. Dreiding had earlier stated to be as follows: (R 320)

"The idea was to get a rotating joint that would lubricate itself, would have a very low co-efficient of friction so that you could avoid the use of a lubricant."

The Bernauer teaching is: (Def Ex R-1)

"the ball joint connections of Teflon are essential parts of the apparatus. Only through the use of Teflon * * * was it possible to construct such an efficient and full proof rotational thinlayer evaporator."

Thus the Bernauer Utility Model Registration teaches only a Teflon to Teflon rotating ball and socket joint, and emphasizes that only Teflon can be used. Accordingly, there is not and could not be teaching of the rotary ball and socket joint of Teflon to glass as called for by Plaintiffs claim.

The Bernauer Gebrauchsmuster does not teach or disclose the combination of elements called for by the claim in suit or any teaching which would make Plaintiffs invention obvious even to a skilled person in this art. (See *infra* p. 32)

The Buchler U.S. Patent

The Buchler U.S. Patent No. 2,865,445 (Def Ex A-5) is said to teach the elements of Plaintiffs claim. A reference to Appendix D at the end of this Brief will show that when the structure of the Buchler Patent is charted against each of the elements of the claim in suit, it does not teach or disclose the elements or combination

required. At the trial Buchler was relied upon to show a Teflon to glass rotating ball and socket joint as called for in elements (f) and (i) of the claim in suit. The portion of the Buchler device relied upon is at the take off end, shown in an enlarged sectional view in Figure 2 of Defendants Ex A-5. It shows a Teflon socket 30 which rotates as a part of the threaded metal portion which is not numbered on the drawing. The glass ball of the ball and socket joint, which is stationary, is 29. It should be observed that here is a showing of a glass to Teflon rotating ball and socket joint in reverse but it still does not fulfill the requirements of Plaintiffs claim in that it does not provide an air tight self lubricating, contamination free engagement as required. The metal portion of this joint contacts the materials being treated and therefore contaminates and destroys the accuracy of the results. There is no teaching in Buchler that he was aware of the problem of contamination (R 454) or that without the metal threaded coupling he could have produced a glass to Teflon rotating joint which was air tight and self lubricating. Furthermore both Dr. Hamlow and Dr. Rapoport knew of the Buchler device and had attempted to use the same in the laboratory of the University of California, and had to give it up because of its most unsatisfactory performance (R 25). There is no teaching and no proof that the Buchler device contained the same elements, in the same organization and produced the same results as the claim in suit. The evidence is completely to the contrary and in fact Buchler could not produce the same results regardless of the elements contained in the Buchler patent. It is not a teaching of Plaintiffs invention and certainly not sufficient to invalidate the Patent.

The Buchler patent was carefully considered by the Board of Appeals in the Patent Office (Plf Ex 4) and the Patent in suit was granted over this reference. It is no more a valid reference now than it was then.

The Birchall U.S. Patent

The Birchall U.S. Patent No. 2,876,985 (Def Ex A-6) is directed to a stopcock for laboratory glassware with a Teflon plug. It therefore does not relate to rotary evaporators and must therefore be considered non-analogous art.

In the first place it should be noted that the Birchall patent did not issue until March 10, 1959, which was some ten months after Plaintiffs had made their invention. Therefore regardless of what it shows it cannot speak as of the date of Plaintiffs invention which was April 24, 1958. (R 27, Plf Ex 5, 5-1). Accordingly, it cannot be relied upon to invalidate the patent in suit under § 103.

In addition it must be pointed out that at best the Birchall patent shows a Teflon stopcock plug 7 which is tapered to fit a female glass taper 6. The entire patent is founded upon the phenomena that the Teflon plug 7 will not be retained in the glass female taper 6 due to its slippery nature, unless retained by some spring or pressure means (R 133-134). In figures 1, 2, and 4 of the patent, the means are a spring 15 and lockcap 16 which is threaded into the narrow projecting end 12 of the plug 7. In Figures 6, 7, and 8, it is a wire spring clip which passes around the glass tubing 5 and up over the top of the plug 7. In Figure 5 there is a compression means bearing against the top surface of the plug to hold it in position while permitting rotation to open and closed positions in each instance.

In Plaintiffs rotary evaporator it was not possible to use such a teaching as is found in Birchall and apply spring or bearing pressure to the taper fit of the glass flask to the male Teflon taper of the rotating shaft. What seemingly was a disadvantage, however, was unexpectedly converted by Plaintiffs into a very distinct advantage. There is a very substantial difference in the coefficient of expansion between glass and Teflon (R 136-139). Teflon expands at a greater rate with heat. When the glass flask is attached to the Teflon shaft Plaintiffs unexpectedly discovered

the benefit from this phenomena because as the glass was heated and the heat transferred to the Teflon shaft joint the glass maintained its air tight, contamination free contact with the Teflon while the Teflon expanded linearly without disturbing this necessary contact. The joint therefore becomes self adjusting (R 88). It also meant that if there was any problem of sticking at this glass to Teflon joint at the end of the evaporation period, the Teflon would contract faster and therefore free the flask for easy and quick removal without any possible sticking or freezing, or danger of breakage either to the flask or to Teflon (R 83-89). Thus in no event does the Birchall patent teach or disclose anything which could be helpful or useful at the time of Plaintiffs invention.

The Ueberwasser U.S. and French Patents

Perhaps it would be well to also point out that at times defendant seemed to rely (R 366) upon the Ueberwasser U.S. Patent No. 3,034,573 (Def Ex 7). This patent was issued May 15, 1962 but was based upon a French patent which issued September 14, 1959 (Def Ex 8) or a year and a half after the date of Plaintiffs invention [April 24, 1958]. Therefore it cannot speak with respect to any teaching obvious at the time Plaintiffs made their invention, as required under § 103.

This patent was relied upon by the Patent Office in rejecting Plaintiffs claim, but the Board of Appeals overruled the Patent Office and allowed the claim in suit over the Ueberwasser reference (Plf Ex 4).

Plaintiffs have made a chart of the principal prior art relied upon by Defendants, charted against the individual elements of the claim in suit. This chart is Appendix D at the end of this Brief. It establishes beyond any doubt that none of the art relied upon teaches or discloses the elements of the claim in suit, and most assuredly does not teach anything with the same organization of elements.

Plaintiffs' Invention Was Not Obvious Even to Persons Skilled in This Art

Section 103 states that the invention must be obvious *at the time of the invention* to a person having *ordinary* skill in the art. All of the investigations relied upon here were by persons having great talents and skills in this art, principally among them Dr. Bernauer, Dr. Cava, and Dr. Dreiding, all of whom hold a doctors degree in chemistry. The key to Plaintiffs invention was under the very nose of these three men. It takes no imagination, now that the invention has been made by Plaintiffs, to point out that if the Bernauer connector socket j had been omitted, and that stationary glass socket [not shown] located above the ball of connection j had been brought down to rest upon and engage the ball of the joint adaptor h, there would have been an air tight contamination free Teflon to glass rotating ball joint. They did not conceive of this. What they now say is obvious was not obvious to them at the time. It hardly becomes them after Plaintiffs have shown the way to a superior machine, to say that it was obvious at the time Plaintiffs made their invention. The truth is that Plaintiffs invention was not obvious even to these skilled investigators.

It is apparent that the trial court by the cavalier treatment given to the question of validity in the opinion at the end of the trial (R 509-510) did not take time to make the factual inquiries necessary to make the legal determination of invalidity, and did not follow the guiding procedures laid down in *Graham v. John Deere* (Supra) and so carefully followed by this Court (See Supra page 26).

Defendants "Vapsilator" Is a Chinese Copy of the Structure and Combination of Elements of the Claim in Suit

One of the greatest compliments which can be paid to the validity and unobviousness of the invention of a patent, derives from the fact that the manufacture of the accused device did not

follow the prior art, but actually reproduced and incorporated all of the structural features set forth in the claim of the patent in suit. The infringing "Vapsilator" is a Chinese Copy of the structure and combination of the claim in suit (R 80, 81).

Both prior to the trial (T 26, 27) in the Answers to Plaintiffs Interrogatories and during the trial, the Defendants were repeatedly asked to point out where in the prior art there was any disclosure which responded to the claim of the patent in suit. In the Request for Admissions, it was stated that there was no patent relied upon, and no prior publication which showed this combination (Plf Ex 13 p. 4). At the trial, Dr. Dreiding, a self-admitted expert in this field (R 385), stated that the closest prior art in his opinion was the Hormuth [Bernauer] evaporator which he and Dr. Bernauer had developed in Switzerland (R 300, 309, 319, 396). The Bernauer [Hormuth] evaporator did not have a Teflon-to-glass rotating ball joint (R 364). It was Teflon-to-Teflon (R 341). Dr Cava said Teflon-to-Teflon was essential (R 264), Dr. Dreiding further testified that he did not want his testimony to include an inference that Teflon is the same as glass (R 425). So did Dr. Cava (R 261). The commercial rotary evaporator "Vapsilator," which Chemophor Zurich began to market in 1965, five years subsequent to the marketing of Plaintiffs product under their invention in November of 1960 (R 46), did not have a Teflon-to-Teflon rotating ball joint (R 408, 364), but had instead a Teflon-to-glass rotating ball joint (R 408), the same as the claim. The "Vapsilator," likewise, did not have a glass rotating shaft, but had a Teflon shaft (R 66) the same as the claim and which was new in this art. Both Teflon-to-glass junctures are the new features of and the structures called for in the claim in suit (R. 89) Neither the contamination free Teflon-to-glass ball and socket rotating joint, nor the Teflon-to-glass lower joint are to be found in the prior art according to Dr. Dreiding's testimony (R 407, 410).

Defendants may deny the actual copying of the structure of the claim in suit, but the fact still speaks vociferously for itself, that the "Vapsilator," the commercial machine which Defendants manufactured and sold, did not follow the prior art upon which Defendants rely, but instead followed the structure of the claim in suit, a successful combination which had not previously existed.

The manufacture of the "Vapsilator," did not follow the teachings of Dr. Bernauer, Dr. Dreiding or the German Utility Model, but instead, duplicated the structure, combination, and the teachings of Plaintiffs patent in suit (R 407-8, 410). This is the testimony of an interested party, Dr. Dreiding, who seeks to capture the United States market in rotary evaporators for his own Swiss company, by destroying a United States patent, and who, by his own admission, is an expert in this field. The obvious was not obvious to any one skilled in this art, even Defendants skilled, but biased witness, Dr. Dreiding.

If the alleged prior art was good enough to destroy Plaintiffs' patent, then why was it not good enough for Dr. Dreiding to follow in producing the "Vapsilator"!

The Presumption of the Validity of Plaintiffs' Patent Is Unrebutted

The presumption of validity of Plaintiffs patent as issued by the Patent Office could only be overcome by clear and convincing proof. *Neff Instrument v. Cobu*, 298 F(2) 82; 132 USPQ 98 (9th Cir. 1961), see also *Hayes Spray Gun v. E. C. Brown Co.*, 291 F.2d 319, 322; 129 USPQ 383, 386 (9th Cir. 1961).

The presumption of validity is strengthened by the history of the patent in the Patent Office where the patent was granted only after considerable controversy and where the Patent Office considered the most pertinent references before issuing the patent.

National Sponge Cushion v. Rubber Corp., 286 F (2) 731; 128 USPQ 320 (9th Cir. 1961).

Neff Instrument v. Cobu, 298 F(2) 82; 132 USPQ 98 (9th Cir. 1961).

The patent in suit was not issued without a struggle (Plf Ex 4). No claims were allowed by the Examiner during the prosecution, and an appeal was taken to the Board of Appeals from the final rejection of all claims. The Patent Office considered the Buchler patent (Def Ex A-5), the Ueberwasser patent (Def Ex A-7) and numerous others but particularly the Buchler and Ueberwasser patents. One claim, the claim of the issue patent in suit, was allowed as a result of this appeal. Thus the pertinent art was before the Patent Office and the claim of the patent in suit was issued only after an appeal.

It is true that the Bernauer Gebrauchsmuster was not a reference. However, the presumption of validity attached to the claim is not impaired because the Gebrauchsmuster was not considered by the Patent Office as a prior patent during the time Plaintiffs application was in the Patent Office. A Gebrauchsmuster is best defined in Def Ex Y:

"The German law, in addition to the regular patent law, provides for short term exclusive rights in new articles of manufacturer (processes and composition of matter being excluded) which might be of a lower order of inventive merit that is required for the longest term patent. These go by the name of 'Gebrauchsmuster' which word is customarily translated as 'utility model' and might also be translated as 'useful article.' They are issued without search and the specifications and drawings, while available to the public, are not issued in printed form."

Even in Germany they do not constitute a reference against or have any effect with respect to a corresponding German patent application directed to the same subject matter, XVII JPOS 376.* Thus in Germany they are not recognized as an anticipation for German patents. Inasmuch as the full specifications and drawings are not issued in printed form, they cannot be used as printed

*Journal of the Patent Office Society.

publications anywhere. The only thing which is published is a notice of the registration. The notice of the Bernauer registration is reproduced at the bottom of page 2 in Defendants Exhibit R. The Patent Office practice since *Ex parte Smith* 82 USPQ 83, did not permit the use of a Gebrauchsmuster as a prior patent in the prosecution of a U.S. application. In *Ex parte Smith* 82 USPQ 83 (P.O. Bd App—1941) the issue was squarely, are Gebrauchsmusters patents. The Board held; (p. 83)

"It is our view that Sections 4883-4886 should be construed together and that the protection afforded by Gebrauchsmusters is not patent protection within the meaning of our laws."

In the Permutit Co. v. Graver Corp. 437 (2) 898; 7 USPQ 51 (7th Cir—1930) the Court held, (p 56)

"The weight of authority seems to exclude the use of the entire Gebrauchsmuster as anticipation. But the courts are divided in the question." [citing cases]. "We have eliminated the two Gebrauchsmusters from our consideration of the case".

In American Infra-Red v. Lambert 360 F(2) 977; 149 USPQ 722 (8th Cir—1966) the court stated: (p 732)

"There are no judicial cases indicating how a Gebrauchsmuster should be treated under the provisions of § 102(d), and only scant authority as to how Gebrauchsmusters are to be treated under other provisions of our patent law."

This court, however, held at page 734, that a Gebrauchsmuster was a patent within the meaning of the patent law, and therefore, a statutory bar to the validity under 35 USC § 102(d) if directed to precisely the same combination of elements.

It was not until September 27, 1965 that the Patent Office changed the rule and amended § 901.05(b) MPEP* to permit

**Manual of Patent Examining Procedure*, U.S. Dept. of Commerce. Patent Office 3rd Ed. (1961).

German registrations of Utility Models [Gebrauchsmuster] to be used as prior patents, but not as printed publications (Def Ex Y). The change in the rules occurred after the prosecution of the patent in suit, after the decision on Appeal, and after the Notice of Allowance (Def Ex K). Therefore at no time during the prosecution of the application resulting in the patent in suit was this Gebrauchsmuster a proper reference against Plaintiffs application. Since the propriety of a reference being called to the Patent Office's attention is determined as of the date of the prosecution, the failure of the examiner to refer to this Gebrauchsmuster registration in no way militates against the presumptive validity of Plaintiffs patent. At no time during the prosecution of the claim in suit was the Bernauer Gebrauchsmuster (Utility Model) a proper reference since it could not be used as a prior patent.

The Patent Office did, therefore, consider the most pertinent art, and the *prima facie* validity of the claim in suit is not overcome.

Commercial Success by Plaintiff Is Not Questioned

Since Plaintiffs equipment made in accordance with the patent in suit was brought on the market its success has been phenomenal. The success was indiluted because Plaintiffs did not operate through salesmen or distributorships but relied solely on very simple and sparse advertising to acquaint chemists of the new equipment, the acceptance of this equipment by the industry has been immediate and continuous. The story of commercial success in the record commencing with the first sale November 16, 1960 (R 46) is told in the testimony of Dr. Rapoport (R 47-52). Such commercial success is a circumstance favorable to nonobviousness. There was no evidence to the contrary.

Plaintiffs' Invention Filled an Urgent Need

As a further indicia of nonobviousness Plaintiffs invention was born out of a need. The need and the activity of Dr. Hamlow and

Dr. Rapoport gave rise to this invention (R 25). These needs came out of the failure of other equipment to do the job and to do it properly.

All of the secondary considerations showing nonobviousness are present in connection with Plaintiffs invention, all of them are uncontested by Defendants and all of them are in supplement to the basic factual determinations showing nonobviousness under § 103.

CONCLUSION

It was Plaintiffs who took the final step to make a rotary evaporator, air tight and contamination free and which turned prior failures into success. As was stated in *The Barbed Wire Patent* case, 143 U.S. 275 (1892).

“Under such circumstances courts have not been reluctant to sustain a patent to the man who has taken the final step which has turned a failure into a success. In the law of patents it is the last step that wins.”

As is shown conclusively by the testimony, infringement by Defendants “Vapsilator” is tacitly admitted, and thoroughly proven. As to invalidity no effort was made by the trial court or Defendants counsel to follow the requirements for determining invalidity under § 103. When these requirements are examined and tested it is clear that there is no support for the holding of invalidity of the patent in suit under § 103.

As indicated earlier Plaintiffs have already received judgment under 35 USC §§ 101 and 116. The defense of prior public use at the University of California under § 102(b) fails because the burden of proof is on the Defendants to show that the kind of use was sufficient to cause invalidity. Factually and under the decisions, this use was not proved. Therefore, there is no possible basis for the holdings of either noninfringement or invalidity of the patent in suit and the judgment of the trial court must be reversed.

Respectfully submitted,

HENRY GIFFORD HARDY

1811 Mills Tower
San Francisco, California 94104
415/362-3361

Attorney for
Plaintiffs-Appellants





Appendix A

PLAINTIFFS-APPELLANTS' EXHIBITS

Exhibit	Identified	In Evidence	Description
1		17	Patent 3,219,099 in suit entitled "Rotary Evaporator and Separator" issued November 23, 1965.
2		61	Rinco brochure for "Vapsilator Model M-70" showing imprint of Scientific Glass Apparatus Co., Inc.
3		58	Scientific Glass Apparatus Co., Inc. advertisement, p. 335, September 1966 issue of "The Vortex."
4		57	Opinion of the Board of Appeals in the Patent Office dated November 25, 1964.
5		26	Shop Order dated April 24, 1958 job No. 412— [First four pages]
5-1		32	Shop Order dated May 6, 1958, job number 416.
5-2		90	Original equipment made May 6, 1958.
6	41	52	Drawing dated May 20, 1960.
7	45	52	Documents showing first sale of Plaintiffs equipment, (a) Stanford University Purchase Order No. US 79605 dated November 16, 1960; (b) Chemquip Co., Invoice No. 100 dated December 9, 1960 and (c) Stanford University check stub dated December 13, 1960.
8	49	52	Chemquip Co. Rotary Evaporator catalog leaflet No. 1.
9	50	52	Calab Model C Evaporator catalog sheet No. 2.
10	51	52	Chemquip Rotary Evaporator Model 100, catalog leaflet No. 3.
11		57	Instruction packing sheet for rotary evaporator dated March 25, 1961.
12		64	Defendants' Responses to Plaintiffs' Requests for Admissions.
13		64	Defendants' Answers to Plaintiffs' Interrogatories.
14		157	Defendant Francis J. Rinderer Answers to Plaintiffs' Interrogatories.
15		157	Defendant Scientific Glass Apparatus Corp. Answers to Plaintiffs' Interrogatories.
16		81	Agreement dated September 21, 1965, between Chemophor Zurich and Rinco Instrument Co., Inc.
17		59	Letter dated August 30, 1966.
18		60	Letter dated September 2, 1966 from Scientific Glass Apparatus Co., Inc. to Dr. Rapoport.
19		62	Notice of Infringement to Scientific Glass Apparatus Co., Inc. dated September 26, 1966 with registered mail receipt attached.

Exhibit	Identified	In Evidence	Description
20		63	Letter dated September 29, 1966 from Scientific Glass Apparatus Co., Inc. to Dr. Rapoport.
21		114	Blow-up enlargement of center page spread of Exhibit 2.
22		114	Blow-up enlargement of the drawing of the patent in suit.

DEFENDANTS-APPELLEES EXHIBITS

A-1		157	Barotte U.S. Patent No. 440,752, issued 1890.
A-2		157	Brown et al, U.S. Patent No. 2,536,676 issued 1951.
A-3		157	Smith U.S. Patent No. 2,575,688 issued 1951.
A-4		157	Rinderer U.S. Patent No. 2,797,747 issued 1957.
A-5		157	Buchler U.S. Patent No. 2,865,445 issued 1958.
A-6		157	Birchall, Jr. et al, U.S. Patent No. 2,876,895, issued 1959.
A-7		157	Ueberwasser et al, U.S. Patent No. 3,034,573, issued 1962.
A-8		157	French Patent No. 1,208,225 issued 1959.
B		357	S. Ricklin, "Filled Teflon for Dry Bearings", Materials and Methods, October 1954, page 112 to 114.
C			Fieser and Fieser "Organic Chemistry," D.C. Heath & Co. (1950) page 957.
D		348	L. C. Craig et al "Versatile Laboratory Concentration Device," Analytical Chemistry, Vol. 22, No. 11, pg. 1462, November 1950.
E		355	M.E. Volk "All-Glass Rotary Film Evaporator" Analytical Chemistry, Vol. 27, No. 7, page 1207, July 1955.
F		[NIE]*	R. Brooks et al "Rotary film evaporator for laboratory use," Journal of Scientific Instrument, Vol. 28, page 28 (1951).
G		[NIE]*	W. Kirsten "Absorption Train for Determination of Carbon and Hydrogen," Mikrochem Acta 1953/1-2, pages 41-43.
H		357	Von Metzsch, Chem-Ing.-Technik, Vol. 28, No. 1 (1956) page 62.
H-1		357	English Translation.
I		[NIE]*	P. G. Howe "Greaseless Vacuum Rotor Seal" Laboratory and Shop Notes (1955) p. 625.
J		(excluded)	
K		158	Certified copy of file wrapper and contents of patent in suit No. 3,219,099.

*Not in evidence, but relied upon in the Pre-Trial Order (T 32-33).

Exhibit	Identified	In Evidence	Description
L		[NIE]*	Sketch attached as Exhibit A to Defendants' Request for Admission Nos. 26, 27 and 28.
M		158	Plaintiffs' Responses to Defendants' Interrogatories Nos. 1-25.
N		158	Plaintiffs' Answers to Defendants' Requests for Admissions Nos. 1-10.
O		159	Plaintiffs' Answers to Defendants' Requests for Admissions Nos. 11-28.
P		307	German Laboratory Text <i>Method of Organic Chemistry</i> .
P-1		307	English Translation.
Q		314	Bernauer Brochure.
Q-1		315	English Translation of Exhibit Q.
R		160	Certified copy of German Gebrauchsmuster 1,752,622.
R-1		160	English Translation.
S		359	Advertisement of Fischer & Porter <i>Analytical Chemistry</i> December 1956.
T		359	Fischer & Porter Stopsock— <i>Analytical Chemistry</i> p. 66A Dec. 1956.
U		[NIE]**	Fischer & Porter, Adv. <i>Analytical Chemistry</i> March 1957.
V		[NIE]**	Page 149—Vol. 36, <i>Jour. of Chem. Ed.</i> March 1959.
W		[NIE]**	<i>The Journal of Teflon</i> Vol. 1, No. 5, May 1960, pp. 1-8.
X		[NIE]**	Mechanical Engineering, pp. 883-884 Nov. 1953.
Y		160	Copies of pages 1 and 2 from the <i>Official Gazette</i> , United States Patent Office Volume 820 #1, dated Nov. 2, 1965.
Z			Deposition of Dr. Michael P. Cava.
Z-1		219	Xerox copy of Bernauer Brochure.
Z-2		219	English Translation.
Z-3		219	Drawing of German Gebrauchsmuster.
Z-4		219	English Translation of German Gebrauchsmuster.
Z-5		219	Print of drawing and parts list.
Z-6		219	Pencil Sketch.
Z-7		219	Print, same as Z-5 but clearer copy.
AA		342	Commercial Model of the "Vapsilator" charged to infringe.

*Not in evidence, but relied upon in the Pre-Trial Order (T 32-33).

**Noticed by Defendants 30 days before trial (T 37).

Appendix

Exhibit	Identified	In Evidence	Description
AB		161	Certified copy from records of U.S. Patent Office listing the Gebrauchsmuster issued including No. 1,752,622.
AC		333	Prototype machine with one part missing.
AD		333	Prototype machine with one part missing.
AE		333	Prototype machine with one part missing.

Appendix B**OPINION BY TRIAL COURT (R 509-511)**

THE COURT: One of the problems that has bothered me R 509 from the beginning of the testimony of Dr. Rapoport was the question of prior public use in the United States.

The court finds that the use at the University of California of the 49 devices was a prior public use within the meaning of 35 United States Code Section 102 (b).

The court further finds that the patent is invalid because of the R 510 teaching of the prior art, particularly the Bernauer patent, because of the teachings that are set forth in Birchall and Buchler as showing connections of teflon against glass to accomplish a contamination free, frictionless connection.

Judgment will be for the defendants.

Would you prepare the findings of fact and conclusions of law for the judgment?

MR. MOORE: Is there any ruling on the question of infringement if in the event there was a reversal of the judgment—

THE COURT: The court will further find that there is no infringement of the use of the combination of substances set forth in the Hamlow-Rapoport patent because of the apparent required use of the lubricant at the connection in the ball and socket as recommended and because of the lack of evidence of the lack of necessity of such a lubricant at those points.

MR. MOORE: Your Honor, about the point of low vacuum source. That was another contention that we stated, avoided infringement because the claim calls for and there is no proof.

THE COURT: I think that it is fairly implicit in the advertising that the court could draw an inference that there is a low vacuum source.

MR. MOORE: There is no question that the device if used R 511 is to be so used but there is no proof that it has been so used. That is my point.

THE COURT: I do not think I am ready to so find in that respect.

Thank you, gentlemen.

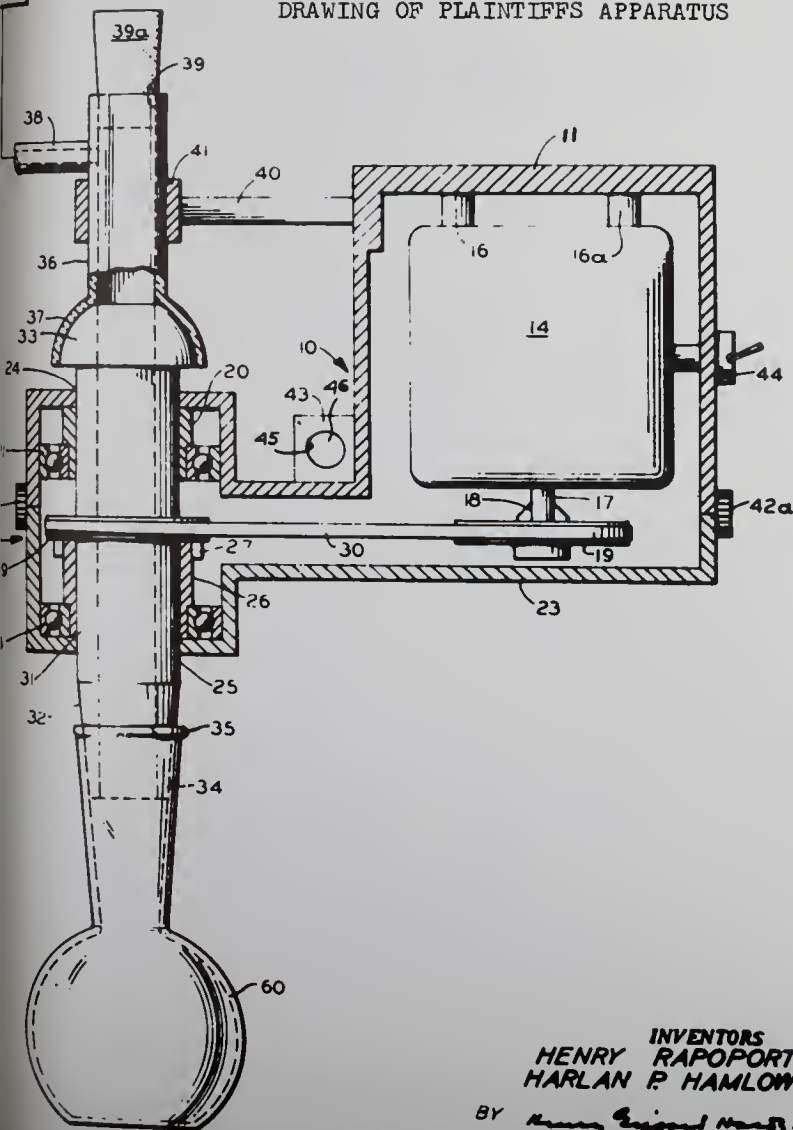
MR. HARDY: Thank you, your Honor.

MR. MOORE: Thank you.

MR. KRIEDEL: Thank you, your Honor.

APPENDIX C

DRAWING OF PLAINTIFFS APPARATUS



INVENTORS
HENRY RAPOPORT
HARLAN P. HAMLOW
BY *Henry Rapoport*

Supporting metal frame

Connector socket ball joint of Teflon

Joint adaptor tapered conus and spherical ball joint of Teflon

Connecting piece of glass

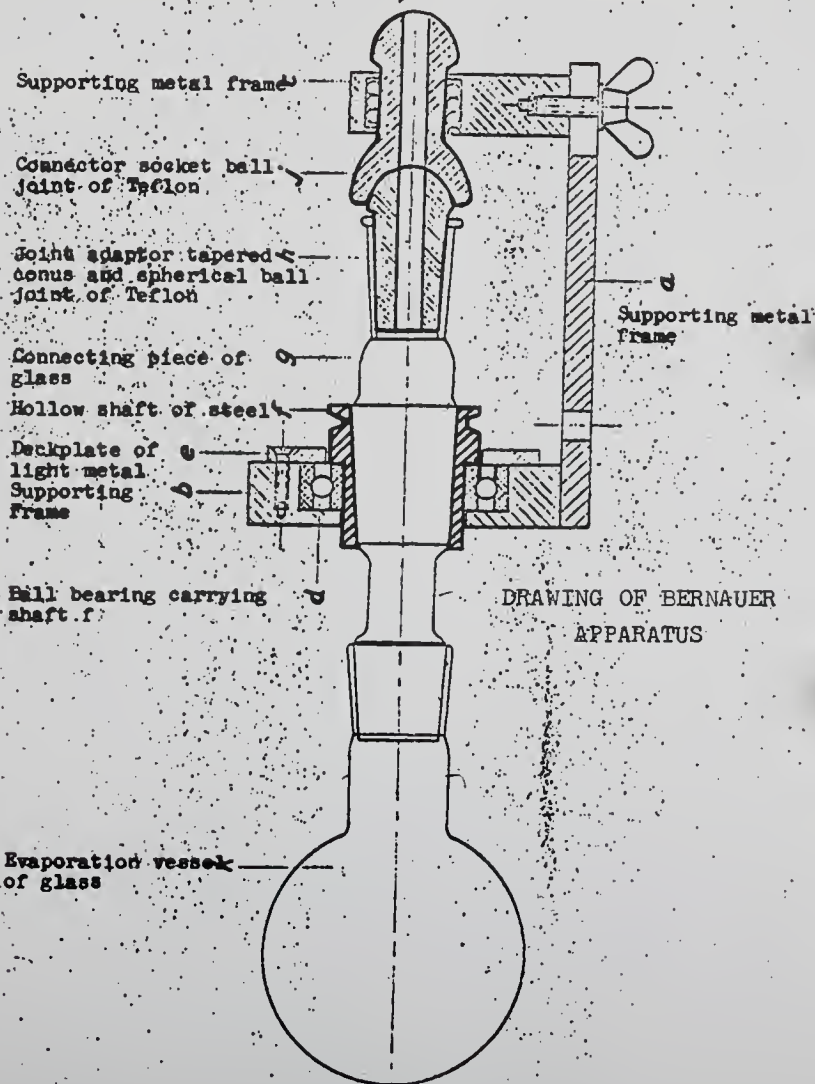
Hollow shaft of steel

Deckplate of light metal
Supporting frame

Ball bearing carrying shaft f

Evaporation vessek of glass

zum Kühler, zur Vakuumleitung



DRAWING OF BERNAUER APPARATUS

Rotations - Dünnschichteneindampfer nach Dr. K. Bernauer
zur Gebrauchsmusteranmeldung vom 17.7.57
der Firma L. Hormuth, Jnh. W. E. Vetter, Wiesloch / Baden

THE COURT: I do not think I am ready to so find in that respect.

Thank you, gentlemen.

MR. HARDY: Thank you, your Honor.

MR. MOORE: Thank you.

MR. KRIEDEL: Thank you, your Honor.

Appendix D

CLAIM OF THE PATENT IN SUIT

PRIOR ART RELIED UPON BY DEFENDANTS

	Barotte 440,752 (R 157)	Brown 2,536,676 (R 157)	Smith 2,575,688 (R 157)	Rinderer 2,797,747 (R 157)	Buchler 2,865,445 (R 157)	Birchall 2,876,985 (R 157)	Ueberwasser 3,034,573 (R 157, 365)	Ciba-French 1,208,225 (R 157)	Craig and Hausmann (R 349)	M. E. Volk (R 355)	Partridge F	Mikrochemica G	von Metzsch (R 356)	Sketch L	Bernauer Brochure (R 314)	Bernauer Gebrauchs- muster (R 159, 301, 364)	Myer and Reed Modification Z-7
	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	D	E	F	G	H	L	Q	R	
Apparatus for separating and removing volatile substances from a composition, in combination																	
(a) A housing	X*	X	X	X	X	NO	X	X	X		X NO	NO		X NO	X	X glass	X glass
(b) A shaft made of polyfluorovinyl resin.....	NO	NO	NO. metal	NO. metal	NO	plug	glass	glass	NO		stainl. steel	NO		glass Teflon			
(c) rotatably mounted in said housing and with both of its ends extending beyond the limits of said housing....	NO	NO	X	X not so mounted	NO	X	X	X	NO		X	NO		X			X
(d) said shaft having a passage of substantially uniform diameter extending axially through the entire length thereof	NO	NO	NO	X not all the way	NO	NO	NO	NO	NO		X	NO		X		NO	NO
(e) said shaft having one end thereof removably securing a flask in airtight engagement for rotation therewith....	NO	NO	X	X	NO	NO	X	X	NO		X	NO		X glass to glass		X glass to glass	X glass to glass
(f) said shaft having its opposite end formed as the ball portion of a ball and socket joint.....	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO		X Teflon Adapt.		No. Teflon adapter	NO. Teflon adapter
(g) A separately mounted glass fixed member, [non-rotating]	NO	NO	X	—	yes	yes	X	X	yes		X	NO		X	X	X	X
(h) having an axial passage therethrough of substantially the same diameter....	NO	NO	NO	—	NO	yes—but not w. plug	NO	NO	NO		NO	NO				NO	NO
(i) terminating with the socket portion of the ball and socket joint rotatably receiving and seating the said ball portion of said shaft in airtight self-lubricating engagement and with their respective passages in alignment	NO	NO	NO	—	NO base portion	NO	NO	NO	E-glass to glass ball joint		NO	NO		X glass to Teflon		NO	X glass to Teflon
(j) Exhaust means communicating with the passage in said fixed member connected to a source of low pressure, and.....	NO but not so connected	NO but not so connected		X	X	—	X	X	X		X	NO		X	X	X	X
(k) Drive means mounted in said housing for rotating said shaft.....	X but no shaft	X solid shaft	X	X	X	NO	X	X	X		X	NO			X	X	X

* X means that the element of the claim is present in some form.

